

RBE(H) Motor Series

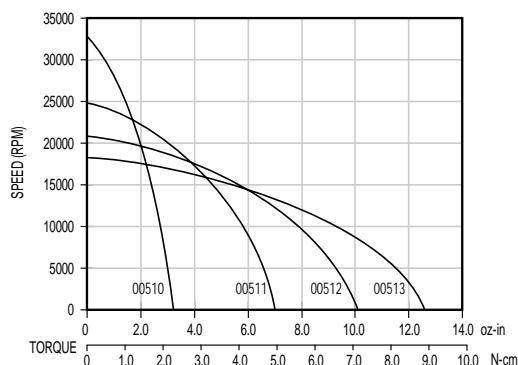
RBE(H) 00510 MOTOR SERIES PERFORMANCE DATA

Motor Parameters	Symbols	Units	00510	00511	00512	00513
Max Cont. Output Power at 25°C amb.	HP Rated	HP	0.040	0.070	0.086	0.095
	P Rated	Watts	29	52	64	71
Speed at Rated Power	N Rated	RPM	20900	15700	13300	11700
Max Mechanical Speed	N Max	RPM	28000	28000	28000	28000
Continuous Stall Torque at 25°C amb.	Tc	oz-in	3.11	7.00	9.80	12.1
		N-m	0.0219	0.0494	0.0692	0.0854
Peak Torque	Tp	oz-in	7.05	15.8	24.4	32.1
		N-m	0.050	0.111	0.17	0.23
Max Torque for Linear KT	Tsl	oz-in	7.05	15.8	24.4	32.1
		N-m	0.050	0.111	0.172	0.227
Motor Constant	Tm	oz-in/ \sqrt{W}	1.00	1.91	2.53	3.03
		N-m/ \sqrt{W}	0.00704	0.0135	0.0179	0.0214
Thermal Resistance*	Rth	°C/Watt	6.23	5.20	4.75	4.51
Viscous Damping	Fi	oz-in/RPM	4.00E-05	6.63E-05	9.32E-05	1.20E-04
		N-m/RPM	2.83E-07	4.68E-07	6.58E-07	8.48E-07
Max Static Friction	Tf	oz-in	0.61	0.80	1.00	1.20
		N-m	0.0043	0.006	0.007	0.008
Max Cogging Torque Peak to Peak	Tcog	oz-in	0.38	0.55	0.73	0.90
		N-m	0.0027	0.0039	0.0051	0.0064
Frameless Motor	Inertia Jmf	oz-in-sec ²	4.50E-05	5.00E-05	5.60E-05	6.10E-05
		Kg-m ²	3.18E-07	3.53E-07	3.95E-07	4.31E-07
Weight	Wtf	oz	1.3	2.0	2.6	3.3
		Kg	3.69E-02	5.55E-02	7.45E-02	9.36E-02
Housed Motor	Inertia Jmh	oz-in-sec ²	4.50E-05	5.00E-05	5.60E-05	6.10E-05
		Kg-m ²	3.18E-07	3.53E-07	3.95E-07	4.31E-07
Weight	Wth	oz	3.8	4.5	5.1	5.8
		Kg	1.08E-01	1.26E-01	1.45E-01	1.64E-01
No. of poles	P		6	6	6	6

Winding Constants	Symbols	Units	A	B	C	A	B	C	A	B	C	A	B	C
Current at Cont. Torque	Ic	Amps	3.18	2.52	3.85	3.09	2.45	3.74	4.43	3.50	2.89	4.16	3.28	2.71
Current at Peak Torque	Ip	Amps	6.55	5.19	8.26	6.55	5.19	8.26	10.4	8.26	6.55	10.4	8.26	6.55
Torque Sensitivity	Kt	oz-in/Amp	1.17	1.47	0.966	2.53	3.19	2.09	2.44	3.09	3.74	3.20	4.05	4.90
		N-m/Amp	0.0083	0.0104	0.0068	0.0179	0.0225	0.0147	0.0172	0.0218	0.0264	0.0226	0.0286	0.0346
Back EMF constant	Kb	V/KRPM	0.865	1.09	0.715	1.87	2.36	1.54	1.81	2.29	2.77	2.36	2.99	3.62
Motor Resistance	Rm	Ohms	1.38	2.19	0.891	1.75	2.78	1.13	0.931	1.466	2.27	1.11	1.75	2.71
Motor Inductance	Lm	mH	0.22	0.34	0.15	0.38	0.60	0.26	0.25	0.40	0.59	0.34	0.55	0.80

*Rth assumes a housed motor mounted to a 3.25" x 3.25" x 0.25" aluminum heatsink or equivalent

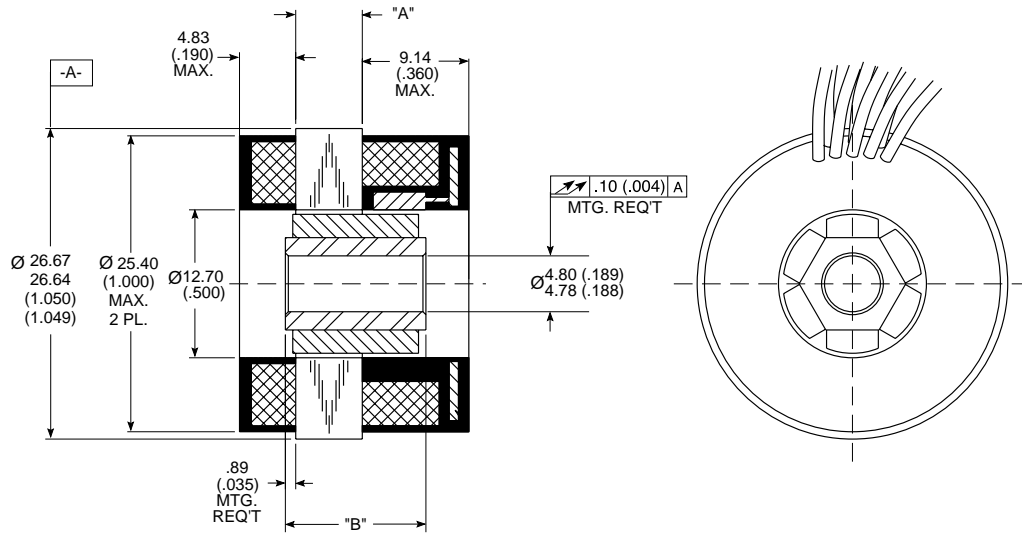
Continuous Duty Capability for 130°C Rise — RBE - 00510 Series



RBE(H) Motor Series

DIMENSIONS

RBE-0051X-X00



Dimensions in mm (inches).
Product designed in inches.
Metric conversions provided for reference only.

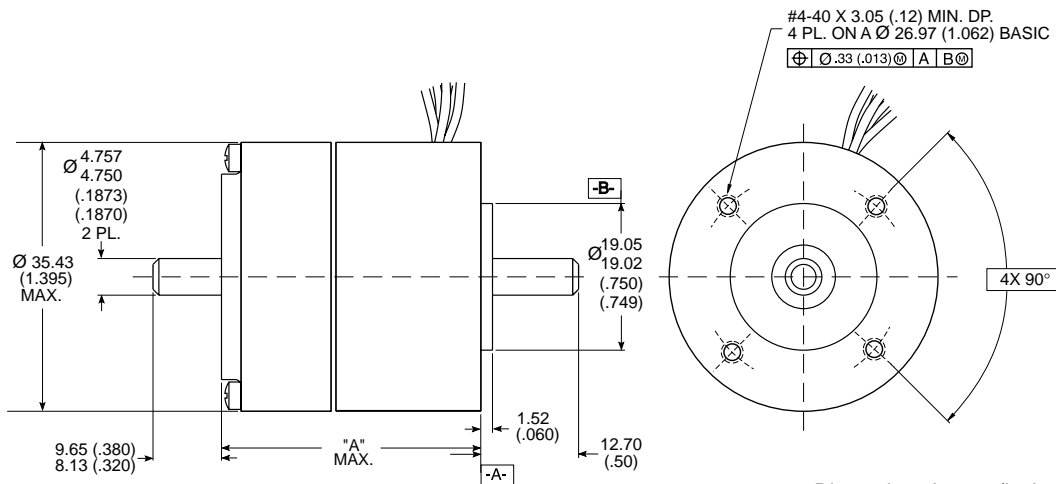
Notes:

- 1) For a C.W. rotation, as viewed from lead end, energize per excitation sequence table.
- 2) V-AB, V-BC and V-CA is back EMF of motor phases AB, BC and CA respectively, aligned with sensor output as shown for C.W. rotation only.

MODEL NUMBER	RBE-00510	RBE-00511	RBE-00512	RBE-00513
"A" Dimension	5.72 (0.225)	12.19 (0.480)	18.80 (0.740)	25.4 (1.000)
"B" Dimension	12.07 (0.475)	18.54 (0.730)	25.15 (0.990)	31.75 (1.250)

Tolerance ± .010 on "A" Dimension.

RBEH-0051X-X00



Dimensions in mm (inches).
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Notes:

- 1) For a C.W. rotation, as viewed from lead end, energize per excitation sequence table.
- 2) V-AB, V-BC and V-CA is back EMF of motor phases AB, BC and CA respectively, aligned with sensor output as shown for C.W. rotation only.

MODEL NUMBER	RBEH-00510	RBEH-00511	RBEH-00512	RBEH-00513
"A" Dimension	34.29 (1.350)	40.77 (1.605)	47.37 (1.865)	53.98 (2.125)

RBE/RBEH LEADWIRE

Motor Leads: #26 AWG Teflon coated per MIL-W-22759/11, 3 leads, 152 (6.00) min lg. ea. 1-black, 1-white, 1-red.

Sensor Leads: #28 AWG type Teflon coated per MIL-W-22759/11, 5 leads, 152 (6.00) min lg. ea. 1-yellow, 1-green, 1-orange, 1-blue, 1-brown.